The following is a complete listing of all claims in the application, with an indication of the status of each:

Listing of claims:

1. (previously presented) A magneto-resistance effect element comprising:

a lower conductive layer;

a free layer provided on the lower conductive layer and having an orientation of magnetization varied by a magnetic field applied thereto;

a non-magnetic layer provided on top of the free layer;

a fixed layer provided on the non-magnetic layer and having a pinned orientation of magnetization;

a vertical bias layer, provided on said lower conductive layer, for applying a magnetic field to said free layer, and said free layer is greater in length in the direction of a magnetic field applied thereto by said vertical bias layer than said fixed layer, and a sense current for detecting a change in electrical resistance of said non-magnetic layer flows substantially in perpendicular relation to said non-magnetic layer, and

an underlying layer for said free layer provided under said free layer, and said underlying layer for said free layer being in contact with said free layer and said vertical bias layer.

2. (original) The magneto-resistance effect element according to claim 1, wherein said lower conductive layer has a recessed portion on an upper surface thereof, and said vertical bias layer is provided so as to allow at least part thereof to be buried in said recessed portion.

3. (original) The magneto-resistance effect element according to claim 1, wherein at least part of said free layer is in direct contact with said vertical bias layer.

4. (canceled)

5. (previously presented) The magneto-resistance effect element according to claim 1, further comprising a vertical bias layer protective layer provided on said vertical bias layer, and said vertical bias layer protective layer being in contact with said vertical bias layer, and said vertical bias layer protective layer being in contact with at least one of said free layer and said underlying layer for said free layer.

6. (currently amended) A magneto-resistance effect element comprising:

a lower conductive layer;

a magnetic layer provided on the lower conductive layer;

a free layer provided on the magnetic layer and having an orientation of magnetization varied by a magnetic field coupled magnetically to the magnetic layer and applied thereto;

a non-magnetic layer provided on the free layer;

a fixed layer provided on the non-magnetic layer and having a pinned orientation of magnetization; and

a vertical bias layer, provided on said lower conductive layer, for applying a magnetic field to said free layer, and said magnetic layer is greater in length in the direction of a magnetic field applied thereto by said vertical bias layer than said free layer, and a sense current for detecting a change in electrical resistance of said non-magnetic layer flows substantially in perpendicular relation to said non-magnetic layer, ~~and~~

wherein ~~an underlying~~ said magnetic layer ~~for said free layer provided under said free layer, and said underlying layer for said free layer being~~ is in contact with said free layer and said vertical bias layer.

7. (original) The magneto-resistance effect element according to claim 6, wherein said magnetic layer is magnetically coupled to said free layer by anti-ferromagnetic coupling or ferromagnetic coupling.

8. (original) The magneto-resistance effect element according to claim 6, wherein said lower conductive layer has a recessed portion on an upper surface thereof, and said vertical bias layer is provided so as to allow at least part thereof to be buried in said recessed portion.

9. (original) The magneto-resistance effect element according to claim 6, wherein at least part of said free layer is in direct contact with said vertical bias layer.

Claims 10-63. (canceled).